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ABSTRACT

The ways teachers differentially treat children for whom they hold different performance expectations were examined. Four seventh-grade teachers were asked to rank their students in order of achievement; rankings were used as the measure of performance expectations. Data cn teacher-student interactions were collected during ten or more hours of observation in each classroom with the Brophy-Good Dyadic Coding System. The System, which is used to record the identity of the student, the sequence of interaction, and the direction of initial contact, allows direct study of the ways teachers differentiate among children in providing response opportunities and giving feedback and reinforcement. When teacher rankings and dyadic codings were analyzed, it was found that teachers present students they perceive as high and middle achievers with significantly more response opportunities than students they perceive as low achievers. (Author/LP)

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THE COMMUNICATION OF TEACHER EXPECTATIONS IN A JUNIOR HIGH SCHOOL[1,2]

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THE COMMUNICATION OF TEACHER EXPECTATIONS

IN A JUNIOR HIGH SCHOOL

Numerous writers have claimed that low teacher expectations hamper student performance (Deutsch, 1963; Wilson, 1963; Katz, 1964; MacKinnon, 1962; Bloom, 1968; Clark 1963). These authors suggest that teachers somehow communicate differential performance expectations to their students, and that students then react to this treatment in such a way as to cause the teachers' expectations to function as self-fulfilling prophesies.

The first attempt to scientifically test the self-fulfilling prophesy hypothesis in the classroom was made by Rosenthal and Jacobson (1968). They found that achievement data taken at the end of the school year were significantly affected by performance expectations induced in the teachers at the beginning of the year, and that the nature of the effects observed was consistent with the idea that teachers' expectations function as self-fulfilling prophesies. The methodology in this study and the veracity of its data have been severely criticized (Barber and Silver, 1968; Thorndike, 1968; Snow, 1969; Taylor, 1970), so that it cannot be unequivocally accepted as a demonstration of self-fulfilling prophesy effects in the classroom. Furthermore, a replication of this work by Claiborn (1969) found no evidence to support a self-fulfilling prophesy hypothesis. These two contradictory studies make it difficult to determine what, if anything, took place. Furthermore, neither study identified or measured any of the events intervening between the inducement of expectations and administration of the criterion achievement tests.

Evidence that teacher expectancy effects exert influence on student

performance has been demonstrated in several other classroom studies (Little, 1968; Flowers, 1966; Schrank, 1968; Palardy, 1969). However, none of these studies included observational measures to generate data showing how teachers communicate their expectations to students. Beez (1967), in a brief laboratory study, found that teachers attempted to teach more symbols (the experimental task) to preschoolers who had been labeled as better intellectual prospects than they did to preschoolers who had not been given this label. Unfortuantely if teachers do communicate differential expectations to students, little behavioral data are available to explain how this process works.

Rosenthal and Jacobson in reporting their findings did not claim to understand the process by which a teacher's expectation for a pupil's intellectual growth is communicated to the pupil. They did speculate that perhaps students who were expected to do well received more rapid reinforcement and/or increasingly appropriate reinforcement than students expected to do average or poor work. Thus these investigators implicitly suggest that teacher expectations are communicated to students through differential teacher behavior.

There is a great deal of literature to suggest that teachers do in fact treat their students very differently. Good and Brophy (1971) review a number of studies indicating that student-teacher interaction consistently varies with sex, social status and achievement level students. Since the subject of this paper is more narrowly focused on differential teacher expectation for student performance, reference will be made here to a few studies which suggest that teacher behavior may be quite dissimilar toward high and low-achieving students. When teacher interactions with high and low-achieving students are compared, both qualitative and quantitative differences are found.

deGroat and Thompson (1949) reported that high achievers more frequently received teacher praise, while low achievers received a disproportionate share of teacher disapproval. Similarly, Hoehn (1954) reported that the low-achieving student received a greater proportion of conflictive and dominative teacher contacts, while the high-achieving student received more promotive and supportive contacts. The finding of Jackson and Lahaderne (1966) that the quality of teacher-student interaction varies with student achievement level is compatible with the previous findings of Hoehn and deGroat and Thompson. Good (1970) reports not only more positive feedback for high achievers in four first grade classrooms, but also more response opportunities. Rowe (1969) reported that teachers waited significantly less time (before calling on someone else, giving the student the answer, etc.) for their least capable students than for their more capable students. Thus if lows were not to lose their response opportunity they had to respond significantly more quickly than high-achieving students.

Although the above studies do show that teachers treat students differentially on the basis of achievement level, they do not provide direct evidence for the self-fulfilling prophesy hypothesis. For example, greater criticism of low-achieving students may be reaction to child behavior (gross inattention, etc.) rather than proactive discrimination by teachers.

The suggestion that differential teacher attitudes do lead to differential student achievement (Rosenthal and Jacobson, 1968) together with evidence for differential teacher attitudes resulting in differential teacher behaviors (Silberman, 1969) and evidence of numerous within-class differences led Brophy and Good (1970) to look at the notion of "expectation effects" as a sequential chain of observable behaviors. Their conceptualization assumed the following

research model:

a) The teacher forms differential expectations for student performance;

b) He then begins to treat students differently in accordance with his differential expectations;

c) The students respond differently to the teacher because they are being treated differently by him;

d) In responding to the teacher, each student tends to exhibit behavior which complements and reinforces the teacher's particular expectations for him;

e) As a result, the general academic performance of some students will be enhanced while that of others will be depressed, with changes being in the direction of the teacher's expectations.

Preliminary research efforts were focused on step "b" of the model, wherein dyadic teacher-student interaction is observed and analyzed. In their observation of four first-grade classrooms, Brophy and Good (1970) found only minor differences in quantity of teacher contact between high and low-achieving students. However, sharp qualitative differences in teacher-student interaction were reported. Teachers demanded better performance from those children for whom they had higher expectations and were more likely to praise good performance when it occured. In contrast, teachers more readily accepted poor performance from students for whom they held low expectations and were less likely to praise their good performance. Furthermore, when high achievers were unable to respond, or responded incorrectly, the teacher was more likely to provide a second response opportunity (repeating or rephrasing the question or giving a clue) than with low achievers in the same situation. Conversely, they were more likely to terminate the interaction (supplying the answer, calling on another student) when reacting to lows than to highs. These results differ somewhat from those of

Good's earlier study (1970), in which teachers called upon their high-achieving students much more frequently than their low-achieving students. This difference could be attributed to the fact that Brophy and Good observed in a school which utilized the tracking system, whereas Good did not. It is feasible that because students were grouped according to ability, and hence objective differences among the children were minimized, differential teacher treatment would be of a more subtle nature. However, the differences could also be due to "school effects." All teachers may treat their high and low-achieving students differently, but the nature of the differential behavior may be influenced by local school factors.

There is further evidence suggesting that teachers, at least in some situations, interact more frequently with their high-achieving students. Kranz, Weber, and Fishell (1970) also report significant differences in dyadic teacher-student contact for high and low-achieving students. But it should be noted that teacher behavior varied from classroom to classroom. For example, some teachers were rather consistent in the behavior they directed to average and low ability students but differed notably in the way they interacted with highs. Other teachers treated highs and middles similarly but differed sharply in their treatment of low-achieving students.

Research findings cited above have provided some information about the ways in which elementary school teachers communicate their differential expectations for student performance. It is important to note that although the nature of the findings differ from study to study (indicating perhaps that teachers communicate their expectations in different ways) differences in teacher treatment of high and low-achievement students have been found by all investigators

who have looked for them. However, virtually no examination of differential teacher behavior has taken place at the secondary level. The authors are aware of only one study at the secondary level that examines how teacher behavior within classrooms varies by student achievement level. Specifically, Horn (1914) examined opportunity for recitation in 229 classrooms (grades one through twelve) and found that overall, students ranked by teachers in the highest quartile in "general-all-round ability" did about 40 percent more reciting than those in the lowest quartile. Moreover, the inequality increased with grade level so that in high school, the top quartile did twice as much reciting as those in the lowest quartile.

Although the methodology of the Rosenthal and Jacobson study makes it difficult to tell what if any change took place in child performance, their data do suggest that the most change in child performance occured in first and second grade classrooms. This is reasonable in that the child's plasticity and dependence upon the teacher is probably greatest in these early grades. As the child grows older his frame of reference progressively shifts from an adult orientation to a peer approval frame of reference. The child's suggestibility in the first and second grade would appear to be at its maximum plasticity. The child has not formed clear expectations regarding his own ability relative to that of his classmates, and he is still learning what to expect and adjusting to the school as an institution. Thus teachers in the early grades may have a more direct opportunity to help students "learn" their classroom role and their general status.

Some evidence suggests that teachers instructing older students may also treat them on the basis of how they expect them to perform (Little, 1968; Schrank, 1968). However, these studies are suggestive at best and do not show how the

process works. It is important to assess the extent to which the teachers differentially treat students (in ways not attributable to differences in behavior among the students). Do teachers in secondary grades treat students for whom they have low expectations in ways that tend to fulfill them, and if so how does the process work? The purpose of this study was to provide information on the above question by examining differential teacher behavior (quantitative and qualitative differences in teacher-student interaction) at the junior high school level.

Subjects

The research was carried out in 4 seventh-grade classrooms in a junior high school in the Southwest which serves an inner-city, lower-class population. The ethnic composition of the school was approximately 60 percent Mexican-American, 39 percent Afro-American and 1 percent Anglo-American.

The four participating teachers (females, with teaching experience ranging from two to thirty-three years) came from a group which had previously been video-taped and who indicated a willingness to participate in further research efforts (i.e., having an observer in their classroom). The teachers were told that the focus of the study was the behavior of students at different achievement levels in the day-to-day classroom activities. The above explanation was intended to free the teacher of any responsiblity to prepare specially for the days of observation. It was expected that thus freed, she would continue with normal activities and normal interaction patterns.

Final selection of the four teachers (one Math, one Reading, and two Social Studies) was based on scheduling convenience for both the teacher and the observer. Three of the teachers were observed twelve times during a fixed class period over two months. Only ten observations were possible over the same period of time for one of the Social Studies teachers.

The tracking system was utilized in the school and classes observed covered the spectrum: two low-level classes, one combination low and medium and a medium-high level class.

Ranking Procedure

Participating teachers were asked to rank the students in their class in order of their achievement. The ranking instructions were kept vague in order to

allow the teacher to use her own subjective criteria in placing the students on the achievement continuum. The ratings were then used as the measure of teachers' expectations for the classroom performance of the students. Expectancy groups were formed from the rankings provided by the teacher. The top one-third of her ranked students were assigned to the high group, the middle third of the distribution formed the middle group and the bottom third were placed into the low group.[1] The rankings were requested by mail, and returned by mail to the project supervisor. The classroom observer did not have access to the rankings until the data had been collected.

Observation System

Data were collected with the Brophy-Good dyadic observation system (Brophy and Good, 1969; Good and Brophy, 1970). The system is designed to capture dyadic teacher-student interaction. Coding categories apply whenever a teacher is dealing with a single student, whether that contact be public (as in exchanges during classroom discussion) or private (as in individual help with a homework problem).

The coding system preserves the identity of the student who has contact with the teacher, the sequence of the interaction (what happens after what), and the direction of the initial contact (student or teacher initiated). The system thus allows for separation of effects (differences in quantity or quality of interaction) due to the teacher from effects due primarily to the student. It also allows for direct comparison of teacher-student interaction patterns through

[1]The number of students assigned into high, middle, and low groups was not equal in all classrooms, and in such classes extra students were placed into the middle group. The number of students per group follows: class 1 (7,9,7); class 2 (7,7,7); class 3 (9,10,9); class 4 (9,9,9).

conversion of frequency codes into percentages. In this way, effects due to differences in absolute frequencies are neutrlized. In addition, the class may be treated as a group simply by combining the data for individual pupils. Reliability data were collected in field settings, and acceptable inter-rater reliability was established prior to data collection. (See Brophy and Good, 1969, for a description of the training process and reliability standards.)

Results

Overall results indicate that there were differences in the interaction of the teacher with students at the various achievement levels. Comparison of high, middle and low expectancy groups reveals quantitative differences in teacher-student contact but little difference in the quality of interaction patterns.

Table 1 presents the raw frequencies for the total number of response opportunities (chances to recite or answer a question) that high, middle, and low groups of students received in each class. This table shows that high and middle group students clearly received more response opportunities than lows. Note that a middle, high, low hierarchy was observed in each classroom.

TABLE 1

Number of Response Opportunities Received by High, Middle, and Low Expectancy Groups

	HIGH	MIDDLE	LOW
Teacher 1	75	87	17
Teacher 2	46	69	30
Teacher 3	123	165	102
Teacher 4	19	21	9
Total	263	342	158

Chi Square analyses comparing the three groups revealed differences significant at the .05 level.* While there was no difference between the high and middle groups, the high vs. low group comparison approached significance ($p \leq .10$), and the middle vs. low group comparison reached .05 level of significance. Thus, the low group stands out as having significantly fewer response opportunities than highs or middles.

*These and other Chi Square analyses are based on distributions of median splits. Subjects were assigned to cells according to whether they were above or below their class median. The data from the four classes were then combined to yield a 2(above or below median) x 3 (high, medium or low expectancy) cell matrix.

Table 2 provides the frequency of teacher afforded, work-related interactions with students. These interactions are private in nature and take place when the teacher goes to the student's desk (to check his work, to ask a question, etc.)

TABLE 2

Teacher-Afforded Work Interactions

	HIGH	MIDDLE	LOW
Teacher 1	0	4	3
Teacher 2	19	50	43
Teacher 3	9	21	22
Teacher 4	20	34	23
Total	48	109	91

Chi Square analysis comparing high vs. middle group approaches but does not reach significance. It is evident, however, that highs received approximately half the number of afforded work contact given to either the middle or low groups. In every classroom the highs received fewer teacher-afforded work contacts than lows and middles.

Table 3 provides the frequency of student-initiated work interactions. These interactions are private contacts between teacher and an individual student that are student initiated (student goes to the teacher's desk, student raises hand and teacher goes to student desk).

TABLE 3

Student-Initiated Work Interactions

	HIGH	MIDDLE	LOW
Teacher 1	17	16	12
Teacher 2	37	63	16
Teacher 3	58	41	37
Teacher 4	37	43	14
Total	149	163	79

Table 3 demonstrates that lows initiated considerably fewer interactions with the teacher than either highs or middles. Chi Square results show significant differences for high vs. low ($p \leq .001$) and high vs. middle ($p < .05$) comparisons, with the middle-low comparison approaching significance. In every classroom lows initiate fewer teacher contacts than highs or middles.

Table 4 shows the total number of private teacher-student interactions. Although highs get only half as many teacher afforded work contacts as lows or middles, they initiate work interactions twice as often as the low group. The middle group both receives and initiates more interaction opportunities than either highs or lows.

TABLE 4

Total Number of Private Teacher-Student Interactions

	HIGH	MIDDLE	LOW
Teacher-afforded	48	109	91
Student-initiated	149	163	79
Total number of private interactions	197	272	170

Table 5 presents an overall index of teacher-child contact frequency. It combines the frequency of response opportunity (Table 1) with the total number of private teacher-student contacts (Table 4). The high saliency of the middle group for this sample of teachers is clearly evident. The middle group received twice as much teacher contact as the low group.

TABLE 5

Total Teacher-Child Contact

	HIGH	MIDDLE	LOW
Public Response Opportunity	263	342	158
Total Private Interactions	197	272	170
Total Number of Teacher-Child Contacts	460	614	328
Total Percent of Teacher-Child Contacts	33%	44%	23%

Qualitative Differences

Two types of qualitative differences in teacher-student interaction will be examined: level of question asked the students and teacher feedback to student responses.

Level of question refers to the response demand made upon the student. Four levels are differentiated: process questions (questions which require the student to show understanding of academic knowledge or skill by making him explain at length); product questions (questions of factual knowledge requiring short answers); choice questions (response alternatives are provided in the question itself) and opinion questions (questions dealing with student opinion or experience).

Table 6 shows the frequencies of these questions in each expectancy group.

TABLE 6

Level of Question

	HIGH	MIDDLE	LOW
Process	39	34	15
Product	194	270	121
Choice	19	33	19
Self	11	5	3
Total	263	342	158

Process questions, which demand more from the student, suggest a qualitative index. Lows received approximately half the number of process questions received by the high and middle groups. Chi Square results are near significance for both high-low and middle-low comparisons. In addition, product question frequencies (the bulk of response demands) reveal significant differences ($p \leq .05$) between the middle and low groups. Thus while qualitative differences are suggested by the process question data, (15% of questions directed to highs were process questions, while 10% of questions to middles and lows were process questions) product question frequencies suggest that group differences are largely quantitative. In particular, the lows received fewer questions.

Results concerning teacher feedback to student response are presented below. Four feedback categories were considered: number of times students received praise after a correct answer, number of times students received new questions after a correct answer, number of times student answers received no teacher feedback, and number of sustaining feedback responses (repeat, rephase question) from the teacher after incorrect student answers. Frequencies for these categories are presented in Tables 7, 8, 9 and 10.

TABLE 7

Number of Times Students Received Priase after a Right Answer/Total Number of Right Answers

	HIGH	MIDDLE	LOW
Teacher 1	1/47	1/52	0/11
Teacher 2	8/36	5/40	2/20
Teacher 3	4/95	10/130	8/81
Teacher 4	1/14	1/11	2/8
Total	14/192	17/233	12/120

TABLE 8

Number of Times Students Received New Questions after Right Answers/Total Number of Right Answers

	HIGH	MIDDLE	LOW
Teacher 1	6/47	8/52	1/11
Teacher 2	6/36	7/40	8/20
Teacher 3	4/95	8/130	4/81
Teacher 4	1/14	1/11	0/8
Total	17/192	24/233	13/120

TABLE 9

No Feedback to Student Response/Total Answers

	HIGH	MIDDLE	LOW
Teacher 1	2/71	3/84	1/17
Teacher 2	9/43	8/61	3/27
Teacher 3	7/118	4/165	5/108
Teacher 4	1/19	0/21	1/14
Total	19/251	15/331	10/166

TABLE 10

Sustaining Feedback after Student Failure/Total Wrong Answers

	HIGH	MIDDLE	LOW
Teacher 1	5/24	6/32	2/6
Teacher 2	3/7	16/32	4/7
Teacher 3	11/23	21/35	16/27
Teacher 4	0/5	3/10	2/7
Total	19/59	46/109	24/47

Inspection of tables 7, 8, 9 and 10 reveals no differences in teacher feedback patterns for the three expectancy groups. However it is interesting to note in Table 7 that all teachers had extremely low praise rates.

Discussion

The quantitative differences in teacher-child interaction found in the present study are consistent with research findings cited earlier in the paper. Results are clearly compatible with Good (1970) and Kranz, Weber, and Fishell (1970) who report quantitative differences in the interaction of the teacher with high and low achieving students at the elementary level. Also, the results fit neatly with the only other study done at the secondary level: Horn (1914) found that lows had fewer recitation opportunities than highs, and that the discrepancy increased with grade level. However, the quality of teacher-child interaction did not vary by student achievement level in this research (such differences in elementary school have been reported by Brophy and Good, 1970; Jackson and Lahraderne, 1966; and Hoehn, 1954).

The most notable finding of this study is that low achievement students received much less teacher contact than did the high and middle achievers. One possible explanation for the decreasing amount of participation by the low achieving students is that relative to their classmates they fall further behind each school year. Thus at older age levels it may be more difficult for the low achiever to participate in substantive classroom discussions as there are greater real differences between high and low achieving students. Teachers may be afraid of embarrassing low achievers and may therefore call on them less frequently.

The inequality of contact for lows provides some support for the differential expectation hypothesis. However the middle group appears to have much more saliency for the teacher than had been predicted. The similarity of overall teacher treatment toward the high and middle groups does not support the differential expectation hypothesis. The high saliency of the middle students suggests that the teachers geared much of their instructional activity to the middle group. The high saliency of middles was observed in each of the four classrooms. This middle-high congruity was not predicted, although the relative neglect of low achieving students was expected. Low achieving students, whether in elementary or secondary schools, are consistently found to have a relatively inferior interaction pattern with the classroom teacher.

These results, combined with those of Horn (1914), provide support for the hypothesis that with grade level increase, qualitative differences in teacher-student interaction diminish, while quantitative differences may become more sensitive indicants of differential teacher behavior.

Implications for Future Research

This study suggests that student initiated behaviors are, with limits, progressively differentiated. If, in fact, student initiated behaviors are relatively undifferentiated at grade one and become increasingly differentiated, early intervention programs would appear to have corrective potential. Rist (1970) reports (in a case study following children from kindergarten through second grade) how quickly a teacher expectation for low achieving students is picked up and mirrored by other students in the class. Thus some intervention programs should be aimed at changing peer as well as teacher expectations.

Entwisle and Webster (1970) also note that if children's self-expectations are altered it is necessary to change the expectations of peers as well as teachers. Certainly at higher grade levels, intervention programs not only need to improve teacher awareness and change unprofitable differential behavior: measures for changing established patterns of student behavior are also needed. In addition, the complex subtlety of differences between groups for teacher-initiated as well as student-initiated contacts indicates a need for more sensitive measures, but in no way suggests that these differences are inaccessible or uncontrollable.

The present study provides information about differential teacher-child contacts in a secondary school. Obviously the present study needs to be replicated and extended to other secondary samples, to test the veracity of the data reported here and to identify more fully how teachers communicate their expectations to students. If the differential teacher behavior hypothesis is as wide-spread and important a factor as Kenneth Clark (1963) and others have suggested that it is, continued collection of behavioral data in secondary schools will help remove the aura of magic surrounding self-fulfilling prophesy phenomena by showing that the processes involved can be conceptualized as a series of complementary and mutually reinforcing dyadic behaviors amenable to analysis and control. Such research activity will eventually open the way for communicating the results and implications to teachers in language they can understand and in a form that encourages application to their classroom behavior.

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